

WHAT IS CLAIMED IS:

1. An automatic variable-speed transmission for setting up a plurality of gear steps comprising an input shaft, an output shaft and two transmission units which form two parallel branches, of which one branch has a multi-step transmission and the other a summing transmission with a friction clutch for starting and for central synchronization, the friction clutch having a first friction element and a second friction element, one of the friction elements being connectable to transmission elements by means of at least one shift element, with the result that at least one first power command range for gear-step changes between low gear steps and at least one second power command range for at least the gear change into the highest gear step and for the highest gear step are provided, the at least one shift element connecting the first friction element to transmission elements such that there is reduced reactive-power flow in any operating mode.
2. The automatic variable-speed transmission of Claim 1, wherein the at least one shift element connects the first friction element in each case to a gearwheel of wheel trains of the multi-step transmission in both power command ranges.
3. The automatic variable-speed transmission of Claim 1, wherein the multi-step transmission has a wheel train with a transmission ratio higher than 1 (overdrive wheel train) and the at least one shift element connects the first friction element to a gearwheel of the overdrive wheel train in the second power command range.
4. The automatic variable-speed transmission of Claim 1, wherein one of the gear steps is a direct gear step, and the direct gear step is a lower gear step than the highest gear step, so that the overall transmission ratio in the highest gear step is lower than 1 (overdrive).
5. The automatic variable-speed transmission of Claim 1, wherein the input power in the highest gear step is branched to the two branches and the friction clutch is shifted into frictional connection.
6. The automatic variable-speed transmission of Claim 5, wherein the input power in the other gear steps is led as a non-branched power flow through the multi-step transmission.

7. The automatic variable-speed transmission of Claim 1, wherein, by means of the at least one shift element, the first friction element of the friction clutch is selectively connectable to the case or to the wheel train for the highest gear step or to a wheel train for a further gear step.

8. The automatic variable-speed transmission of Claim 7, wherein the further gear step comprises second gear.

9. The automatic variable-speed transmission of Claim 7, wherein the further gear step comprises third gear.

10. The automatic variable-speed transmission of Claim 1, wherein the friction clutch is arranged in the axial direction between the multi-step transmission and the summing transmission.

11. The automatic variable-speed transmission of Claim 1, wherein the summing transmission comprises a planet-wheel train.

12. The automatic variable-speed transmission of Claim 11, wherein the input shaft is connected to a sun wheel of the planet-wheel train.

13. The automatic variable-speed transmission of Claim 11, wherein the second friction element of the friction clutch is connectable selectively to a ring wheel or a planet carrier of the planet-wheel train by means of a second shift element.

14. The automatic variable-speed transmission of Claim 11, wherein the output shaft is connectable selectively to a ring wheel or a planet carrier of the planet-wheel train by means of a third shift element.

15. The automatic variable-speed transmission of Claim 11, wherein the second friction element of the friction clutch is connected fixedly to a ring wheel of the planet-wheel train.

16. The automatic variable-speed transmission of Claim 15, wherein the multi-step transmission further comprises a wheel train for reverse gear.

17. The automatic variable-speed transmission of Claim 1, wherein the transmission input shaft is surrounded by a hollow shaft.

18. The automatic variable-speed transmission of Claim 17, wherein the hollow shaft forms the output shaft of the multi-step transmission.

19. The automatic variable-speed transmission of Claim 11, wherein the transmission input shaft is surrounded by a hollow shaft, the hollow shaft being connected to a planet carrier of the planet-wheel train.

20. The automatic variable-speed transmission of Claim 17, wherein one wheel of a wheel train of the highest gear is mounted rotatably on the hollow shaft.

21. The automatic variable-speed transmission of Claim 20, wherein that wheel of the wheel train of the highest gear step which is mounted rotatably on the hollow shaft is connected to the first friction element of the friction clutch.

22. The automatic variable-speed transmission of Claim 16, wherein one wheel of the wheel train for reverse gear is mounted rotatably on the hollow shaft.

23. The automatic variable-speed transmission of Claim 22, wherein that wheel of the wheel train for reverse gear which is mounted rotatably on the hollow shaft is connected to the first friction element of the friction clutch.

24. The automatic variable-speed transmission of Claim 16, wherein a shift clutch is synchronized for the selection of reverse gear.